

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number  
**WO 2005/014726 A1**

(51) International Patent Classification<sup>7</sup>: C09B 47/26, 47/06, C09D 11/00

(21) International Application Number: PCT/GB2004/002884

(22) International Filing Date: 2 July 2004 (02.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0316855.6 18 July 2003 (18.07.2003) GB  
0317411.7 25 July 2003 (25.07.2003) GB

(71) Applicant (for all designated States except US): AVECIA LIMITED [GB/GB]; Hexagon House, Blackley, Manchester M9 8ZS (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): PATEL, Prakash [GB/GB]; P.O. Box 42, Hexagon House, Blackley, Manchester M9 8ZS (GB).

(74) Agents: MORPETH, Fraser, Forrest et al.; Avecia Limited, Intellectual Property Group, PO Box 42, Hexagon House, Blackley, Manchester M9 8ZS (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

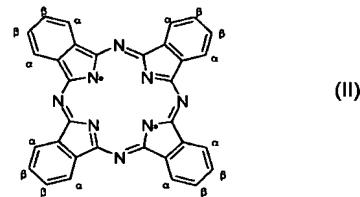
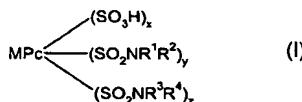
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PHTHALOCYANINES AND THEIR USE IN INK-JET PRINTERS



WO 2005/014726 A1

(57) Abstract: A composition comprising: (a) a major dye component which is a mixture of phthalocyanine dyes of Formula (I) and salts thereof: (Formula I); wherein: M is Cu or Ni; Pc represents a phthalocyanine nucleus of formula (II); R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> independently are H or optionally substituted C<sub>1-4</sub>alkyl; R<sup>4</sup> is optionally substituted C<sub>1-4</sub>-hydroxyalkyl; x is 0.1 to 3.8; y is 0.1 to 3.8; z is 0.1 to 3.8; the sum of (x+y+z) is 4, and the substituents, represented by x, y and z, are attached to a β position on the phthalocyanine ring; and (b) a liquid medium which comprises water, water and an organic solvent or an organic solvent free from water. Also novel dyes, ink-jet printing processes, printed images, printers and cartridges.